INTEGRATED PEST MANAGEMENT

The Salt Lake City School District Experience

Washington School IPM Coalition Event

Gregg Smith, P.E.

September 9, 2011

Seattle, WA

Facility Services
Salt Lake City School District

Agenda

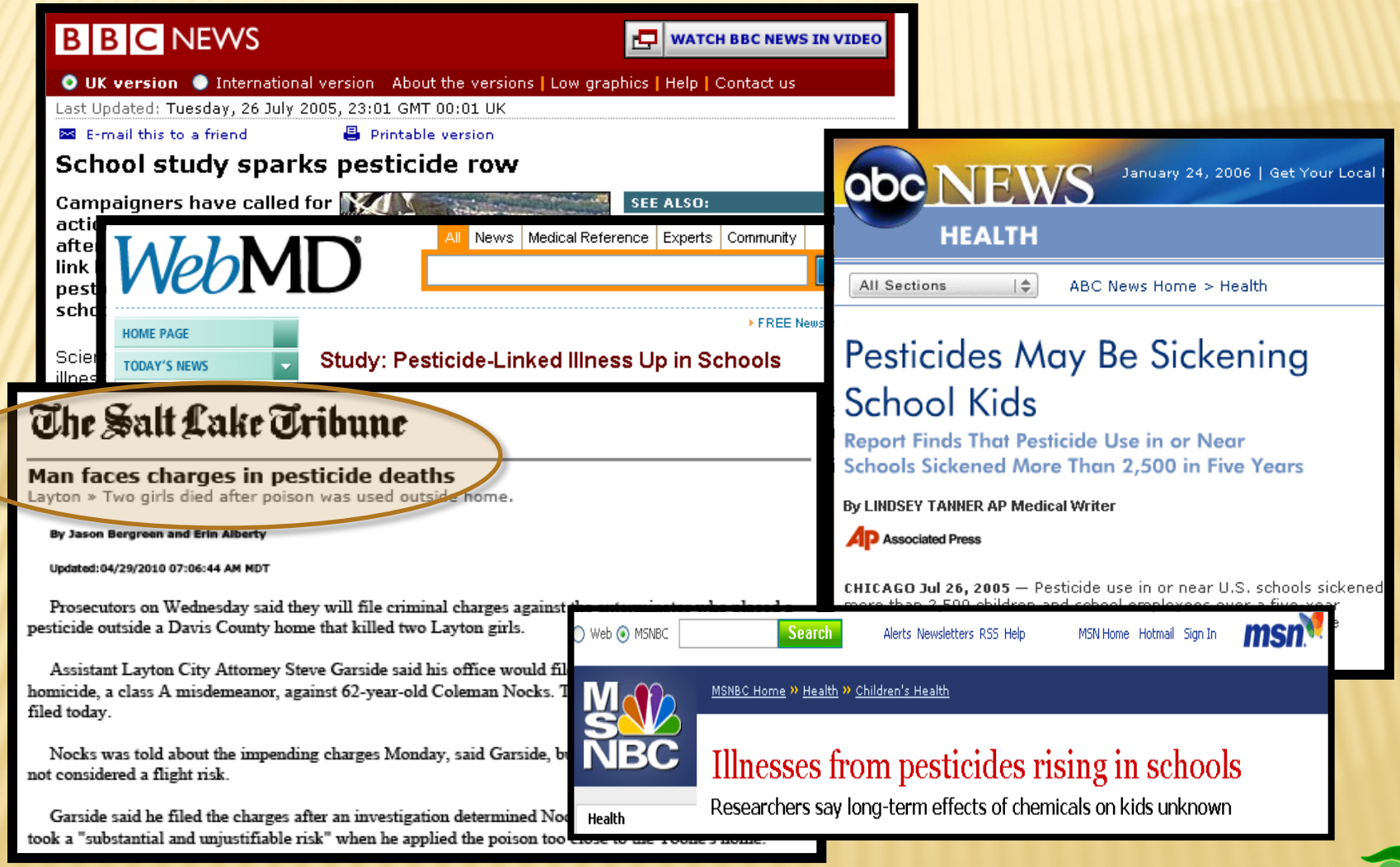
- An 0verview of the Salt Lake City School District
- Brief Introduction to IPM
  - Pesticide Facts
  - Health Effects
  - The Practice of IPM
- Our IPM Story
  - Awareness
  - IPM Pilot Program and District-wide Expansion
  - IPM Star Certification
  - Sustainable IPM
- **Break**
- IPM Challenges
- IPM Costs and Benefits
- Utah IPM Legislation
- IPM Star Certification
- iPestManager
- Questions

Salt Lake City School District Overview

- Students[1]
  - 24,000 students
  - 53% are ethnic minority
  - 60% from low income families
  - 33% are learning English as a second language
- Facilities
  - 36 schools – 3.8 million ft^2 , 387 acres
- Expenditures FY10-11
  - $ 23.6 million M&O budget
    - Maintenance $ 1.30 per ft^2
    - Grounds $ 0.10 per ft^2 (gross site area)
    - Custodial $ 1.68 per ft^2
    - Technical Services $ 0.26 per ft^2
    - Utilities and other $ 1.38 per ft^2
    - Capital improvements[2] $ 1.15 per ft^2

[1] 2010 Fall enrollment statistics
[2] New construction costs are not included

Why IPM?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Campaigners have called for
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TODAY'S NEWS
FREE News
Study: Pesticide-Linked Illness Up in Schools
The Salt Lake Tribune
Man faces charges in pesticide deaths
Layton » Two girls died after poison was used outside home.
By Jason Bergreen and Erin Alberty
Updated:04/29/2010 07:06:44 AM MDT
Prosecutors on Wednesday said they will file criminal charges against
pesticide outside a Davis County home that killed two Layton girls.
Assistant Layton City Attorney Steve Garside said his office would fil
homicide, a class A misdemeanor, against 62-year-old Coleman Nocks.
filed today.
Nocks was told about the impending charges Monday, said Garside, b
not considered a flight risk.
Garside said he filed the charges after an investigation determined No
took a "substantial and unjustifiable risk" when he applied the poison too
abc NEWS
January 24, 2006 | Get Your Local
HEALTH
All Sections
ABC News Home > Health
Pesticides May Be Sickening School Kids
Report Finds That Pesticide Use in or Near Schools Sickened More Than 2,500 in Five Years
By LINDSEY TANNER AP Medical Writer
Associated Press
CHICAGO Jul 26, 2005 — Pesticide use in or near U.S. schools sickened
Web
MSNBC
Search
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MSNBC
MSNBC Home » Health » Children's Health
Illnesses from pesticides rising in schools
Researchers say long-term effects of chemicals on kids unknown
Health

It’s What The School Community Wants!

Green

A Safe Environment

Safe from:

- Pest organisms
- Arthropod vectored diseases
- Inappropriate pesticide use

Pesticide Facts

- Health effects of 48 commonly used pesticides used in schools and child care facilities:
  - 22 are possible carcinogens,
  - 26 cause reproductive effects,
  - 31 damage the nervous system,
  - 31 injure the liver or kidney,
  - 41 are sensitizers or irritants,
  - 16 can cause birth defects

Health Impacts

- Asthma is the most common chronic illness in children
  - 4.8 million kids in the U.S.
  - 1 in 8 school aged children in Arizona
  - Many commonly used indoor liquid pesticides and space treatments are known asthma triggers
  - Exposure to weed killers before the age of one is linked to a four-fold increase in childhood asthma
- Children take in more pesticides relative to body weight than adults, have developing organ systems that are more vulnerable and are less able to detoxify chemicals

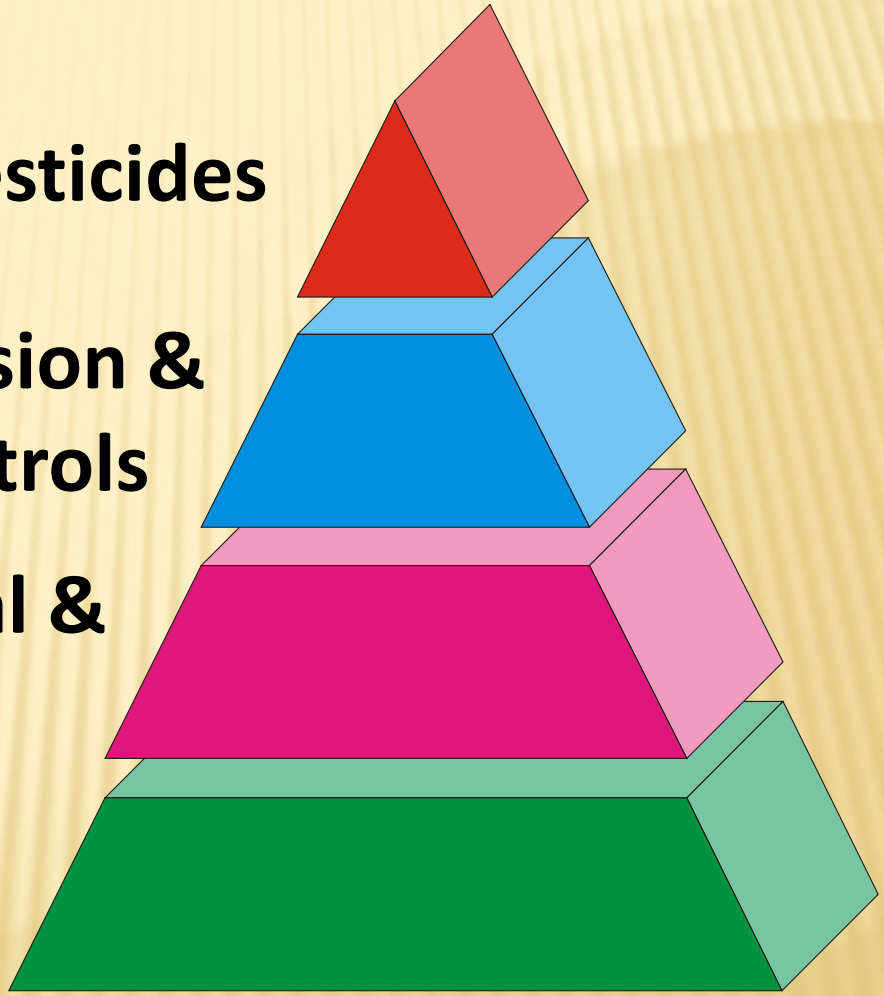
A Statistic …

The National Academy of Sciences 1993 landmark report, *Pesticides in the Diets of Infants and Children*, estimates that

50%

of lifetime pesticide exposure occurs during the first five years of life

The Practice of IPM



Education and Communication

- Pest identification
  - Proper identification aids in selecting suitable IPM strategies
- Pest biology
  - Effective IPM requires a basic understanding of:
    - Pest behavior
    - Habitat preferences
    - Food preferences
    - Reproductive cycles

Behavior Modification, Sanitation & Housekeeping

- Eliminate ***pest conducive conditions*** where pests can find:
  - Food
  - Shelter
  - Water
- Pay attention to ***pest vulnerable areas*** where such conditions are typically found:
  - Kitchen, pantry and cafeteria
  - Dumpsters
  - Teacher's Lounge
  - Custodial closets
  - Special Ed / Classrooms / Nursery
  - Restrooms
  - Grounds

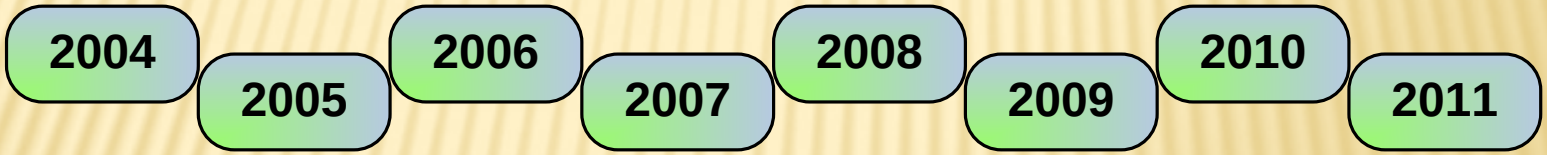
Exclusion and Mechanical Controls

- Goal is to seal building from pests
- Effort and costs will vary greatly depending upon:
  - Age and condition of the building
  - Severity of the pest problem
  - Level of maintenance
  - Maintenance budget

Pesticides

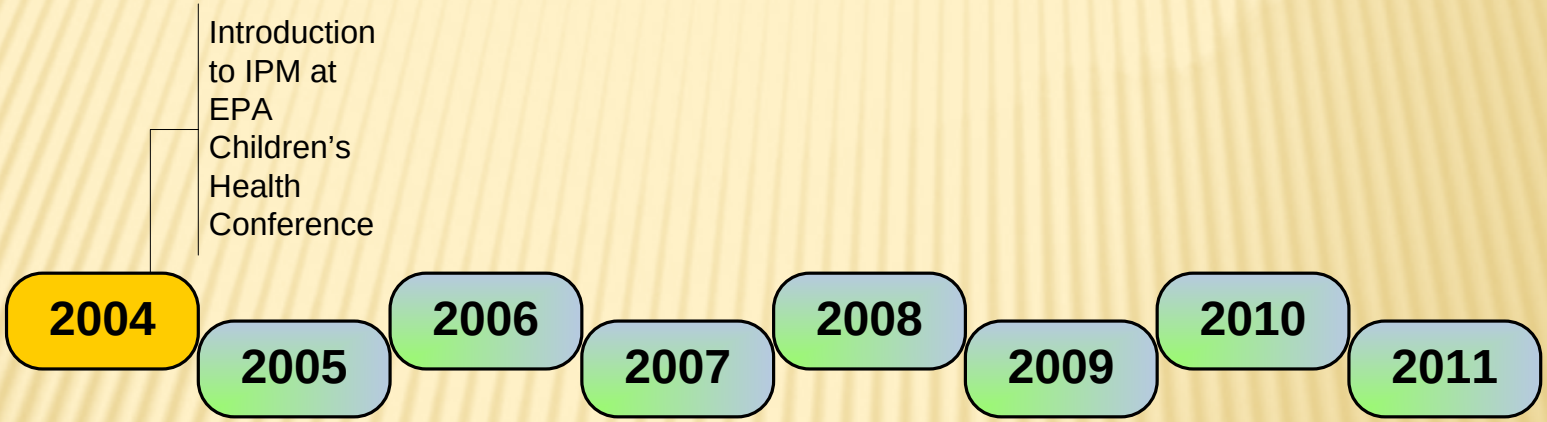
- Use only when appropriate and after all other options have been tried
- Apply the least toxic pesticide available
- Use the absolute minimum required
- Base the timing and coverage on the targeted pest
- Require pre-application notification
- Require in-house applicators to be trained and licensed or contract with a Pest Management Professional
- Treat every pesticide like it might be banned tomorrow… be cautious!

Our IPM Story



It didn’t happen overnight …

Awareness



Facility Services
Salt Lake City School District

IAQ And IPM – Environmental Cousins

EPA's IAQ Tools for Schools Checklists

Teacher's Checklist

Make sure that the classroom is cleaned properly

- ❑ Make sure classroom is dusted and vacuumed thoroughly and regularly
- ❑ Make sure trash is removed daily
- ❑ Make sure food is not kept in classroom overnight
- ❑ Store animal food, if any, in tightly sealed containers
- ❑ Look for signs of pests
- ❑ Avoid the use of scented cleaners

Building Maintenance Checklist

PEST CONTROL

Use Integrated Pest Management (IPM) methods of pest control

- ❑ Do not rely on widespread, indiscriminate use of pesticides to control pests
- ❑ If you are in charge of pest control, obtain information about IPM from the IAQ Coordinator
- ❑ If pesticides are used outdoors, do not apply near outdoor air intakes for the ventilation system. If unavoidable, shut down the affected ventilation system(s) and remove occupants until application has been completed and ventilation has been restored. Similarly, avoid application near doors and open windows

Δ No pest problems

Δ Already using Integrated Pest Management

○ Need information or assistance with IPM

Food Service Checklist

Check food preparation, cooking, and storage areas regularly for signs of insects and vermin

- ❑ Look for dead insects or rodents
- ❑ Look for feces
- ❑ Notify IAQ Coordinator if insects or vermin infestation is discovered

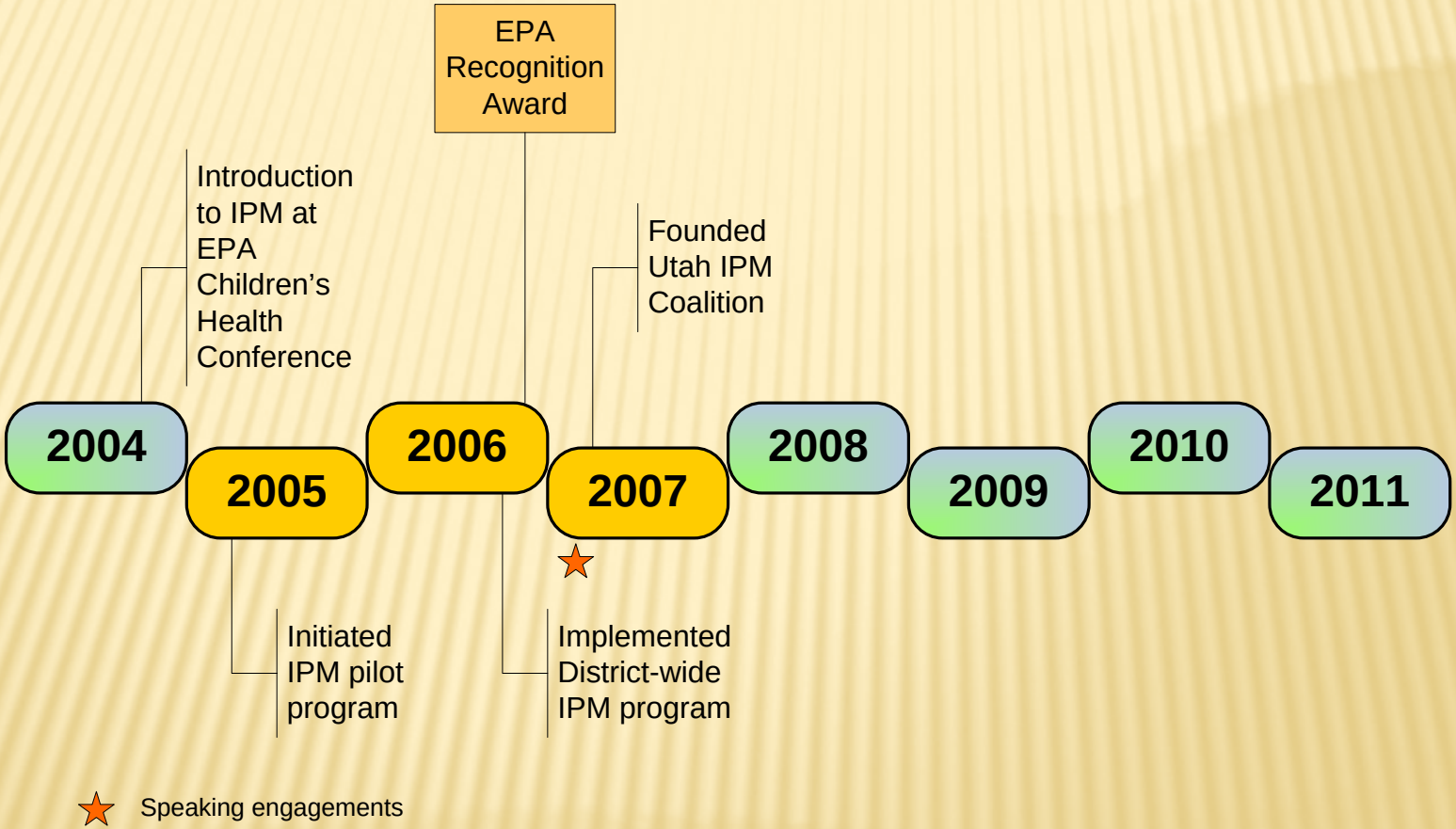
Δ No signs of insects or vermin

○ Need help, found signs of insects or vermin

Confirm that appropriate food preparation, cooking, and storage practices are implemented

- ❑ Review food handling and storage practices — containers should be well-sealed, with no traces of food left on outside surfaces of containers

IPM Pilot Program



IPM Pilot Program

- Received indirect assistance from an EPA grant
- Started Spring 2005
- Selected an elementary, middle and high school that had pest infestation problems, a proactive custodian, cooperative teachers and kitchen personnel and an understanding principal
- Initial training focused on the Custodial Dept.

Pilot Program Results

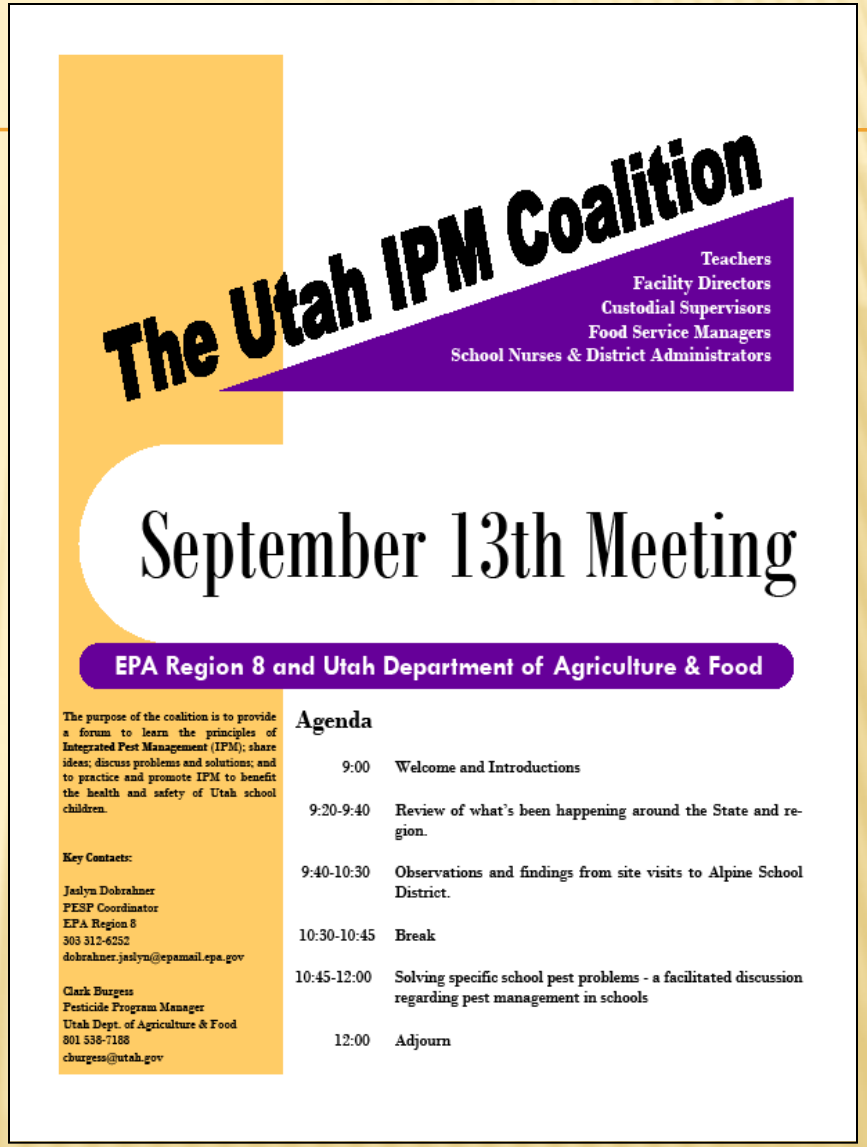
- Achieved a 90% reduction in pesticide applications in the pilot schools
- Reduction of pests in 2 of the 3 schools and no increase in the third school
- Reluctant cooperation with contracted Pest Management Professional (PMP)
- Received EPA's Award of Recognition

District-wide Program Expansion

- Rolled out IPM program to all District schools in late 2006
- Expanded training efforts to include Custodians, Kitchen and Maintenance personnel
- Terminated contract with PMP in 2007
- Founded the Utah IPM Coalition

Utah IPM Coalition

The purpose of the Utah IPM Coalition is to provide a forum for school district leaders, managers, supervisors and staff to learn the principles of Integrated Pest Management; share ideas; discuss problems and solutions; and to promote the practice of IPM to better protect the health, safety and welfare of all Utah school children



The Utah IPM Coalition

Teachers
Facility Directors
Custodial Supervisors
Food Service Managers
School Nurses & District Administrators

September 13th Meeting

EPA Region 8 and Utah Department of Agriculture & Food

The purpose of the coalition is to provide a forum to learn the principles of Integrated Pest Management (IPM); share ideas; discuss problems and solutions; and to practice and promote IPM to benefit the health and safety of Utah school children.

Key Contacts:

Jaslyn Dobrahner
PESP Coordinator
EPA Region 8
303 312-6252
dobrahner.jaslyn@epamail.epa.gov

Clark Burgess
Pesticide Program Manager
Utah Dept. of Agriculture & Food
801 538-7188
cburgess@utah.gov

Agenda

9:00	Welcome and Introductions
9:20-9:40	Review of what's been happening around the State and region.
9:40-10:30	Observations and findings from site visits to Alpine School District.
10:30-10:45	Break
10:45-12:00	Solving specific school pest problems - a facilitated discussion regarding pest management in schools
12:00	Adjourn

Pest Press

- A District newsletter with a focus on pests
- Available on demand on our Department website
- Expert content from Universities of Arizona and Florida
- Local information from Utah State University Extension

Salt Lake City School District No. 10

Facility Services

PEST PRESS

Cockroach Monitoring

We don't really want to see them, but monitoring for cockroaches is the best bet in developing an action plan for managing them. Cockroaches like to live in tight areas close to food and water sources. Monitoring can give you a plethora of information about where these cryptic harborages are located.

Figure 1. Tri-fold monitoring station

Monitors are basically sticky boards that trap cockroaches. There are several models to choose from. There are your basic glue board, tri-fold glue boards (figure 1), and matchbox type glue boards (figure 2). Some, such as the matchbox type, come with a cockroach pheromone to attract the cockroaches. If you are using monitors in higher traffic areas, take note. The matchbox monitors are sturdy enough to withstand some wear and tear from routine cleaning efforts. The tri-fold monitors often get compressed and become useless for pest monitoring. With that said, here are some tips on the placement of cockroach monitors.

Figure 2. Matchbox monitoring station

- Monitors should always be dated to monitor activity over time.
- Be sure to place enough monitors to accurately monitor an area. Monitors provide valuable information about pest activity, so be sure to use a sufficient number of them. Food service areas should have more monitors than non-food areas.
- If a trap is consistently empty, the trap may be relocated to another site.
- Monitors should be placed along walls or in corners (figure 2).
- Create a map of the area that includes the location of the traps. You may also leave space on your map to write numbers of insect per trap for each inspection. It may be helpful to use monitor locators such as stickers. (Tip from Dan Lisenko and Dwayne Riedel, Manatee County Schools.)
- Monitors should be kept out of view if possible.
- Monitors may be secured with double sided tape. They should be placed in clean, dry areas close to suspected cockroach harborage.
- If possible, monitors should be placed in between resources (harborage, food, and water) where cockroaches may travel.

Figure 3. Cockroaches in a monitoring station.

- Monitors should be replaced if full or if the monitor has been wet or is covered in dust (figure 3).
- Monitors should be placed in areas where goods are received to trap cockroaches from shipments.

What can you learn from a cockroach monitor?

Okay, we are all curious about that little box in the corner and we want to look inside, right? Right. But there is more knowledge to be gained than just sheer numbers of trapped insects.

Fresh Paint

- The Facility Services bi-monthly newsletter, *Fresh Paint*, features "Bug Off", a regular column to highlight IPM and related topics

Fresh Paint

May-Jun 2011

Custodial, Maintenance, Grounds, Technical Services

INSIDE THIS ISSUE:

8 Big Pages!

SALT LAKE CITY SCHOOL DISTRICT

Your Best Choice

The Salt Lake City School District does not discriminate on the basis of age, color, disability, gender, gender identity, national origin, pregnancy, race, religion, or sexual orientation in its programs and activities, except where appropriate and allowed by law. The following person has been designated to handle inquiries and complaints regarding prohibited discrimination, harassment, and retaliation: Kathleen Christy, Assistant Superintendent, 440 East 100 South, Salt Lake City, Utah 84111, (801) 578-8251. You may also contact the Office for Civil Rights, Denver, CO, (303) 844-5695.

Perspectives

Summer might be just around the corner according to the calendar but the weatherman has a different spin on things. Regardless of what the weather brings, this is the time of year when we are hard at work trying to complete capital projects and annual maintenance and repair tasks that must be done after the last student is out the door in June and before the start of school in the fall. If you factor in extended summer school programs and when the teachers return to school before classes actually start in August, there are only a few short weeks to accomplish all those tasks while the building is unoccupied.

Some capital projects involve demolition; coordinating the efforts of numerous contractors or objectionable odors and fumes. That's simply the nature of construction and the larger or more extensive a project, the longer it is likely to require to complete and most importantly, the greater the chances for problems.

Construction is typically "sequential", i.e., foundations are first, followed by the walls, followed by the roof, etc. And because contractors are specialized by trade, they only focus on their portion of the job. When a contractor is over extended and misses a deadline, it wrecks havoc on a project schedule. When more than one contractor is involved, the potential for problems is compounded exponentially.

UNDER CONSTRUCTION

Material shortages or unexpected long lead (delivery) times for key components can likewise lengthen the time required to complete a project.

Capital projects are also impacted by the availability of our own resources. Our Supervisors trying to complete as many projects as our personnel can handle while contracting out those requiring special skills or additional manpower. It's a special "art" to juggle budgets, short deadlines, limited personnel, Purchasing regulations, surly contractors, materials availability and unforeseen problems without loosing one's perspective. The next opportunity you have to talk to one of our Foremen or Supervisors, be sure to say **THANK YOU** for a job well done in a very, very short time.

Gregg Smith
Director, Facility Services

Summer is our busiest time of the year so Fresh Paint will be on vacation from July to August.

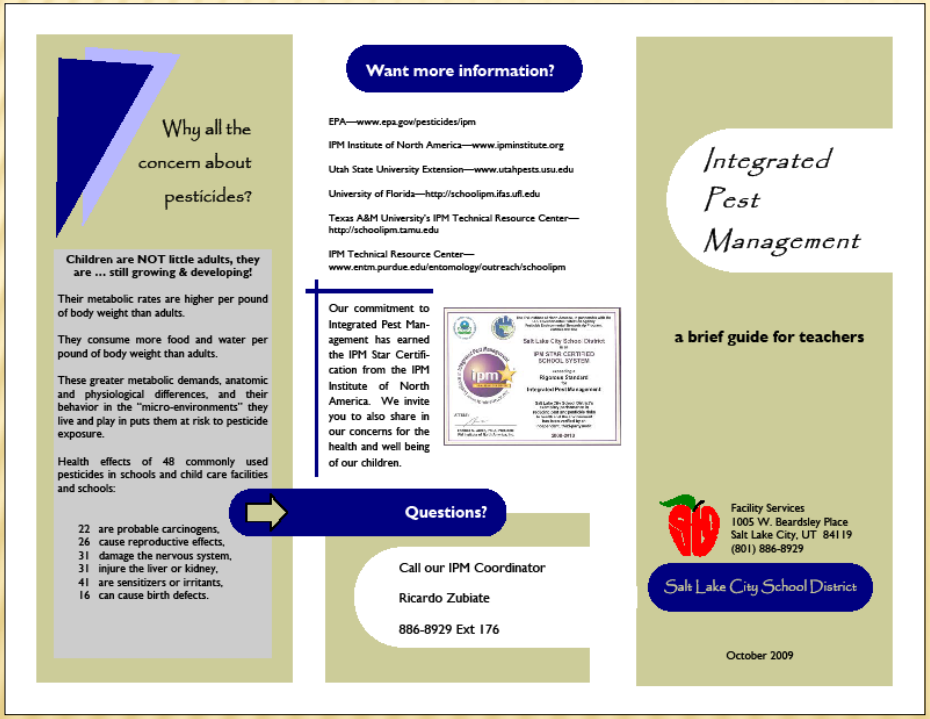
See you again in September!

Summer Fire Alarm Testing

The Technical Services folks are **required by law** to conduct a comprehensive annual test of the fire alarm systems in every District facility. Testing begins June 3rd, continues through August 17th and is generally annoying to everyone including the neighbors. It takes from one to two hours to complete and includes sounding the very noisy alarm horns. Public notification and a **testing schedule will be posted on the District's home page** a few weeks in advance.

We try to avoid interfering with summer school programs, registration days, etc., however, there is always a chance for conflict. **Please note your testing day and be prepared for the interruption.**

Posters and Brochures



Why all the concern about pesticides?

Children are NOT little adults, they are ... still growing & developing!

Their metabolic rates are higher per pound of body weight than adults.

They consume more food and water per pound of body weight than adults.

These greater metabolic demands, anatomic and physiological differences, and their behavior in the "micro-environments" they live and play in puts them at risk to pesticide exposure.

Health effects of 48 commonly used pesticides in schools and child care facilities and schools:

22 are probable carcinogens,
26 cause reproductive effects,
31 damage the nervous system,
31 injure the liver or kidney,
41 are sensitizers or irritants,
16 can cause birth defects.

Want more information?

EPA—www.epa.gov/pesticides/ipm

IPM Institute of North America—www.ipminstitute.org

Utah State University Extension—www.utahpests.usu.edu

University of Florida—http://schoolipm.ifas.ufl.edu

Texas A&M University's IPM Technical Resource Center—http://schoolipm.tamu.edu

IPM Technical Resource Center—www.entm.purdue.edu/entomology/outreach/schoolipm

Our commitment to Integrated Pest Management has earned the IPM Star Certification from the IPM Institute of North America. We invite you to also share in our concerns for the health and well being of our children.

Questions?

Call our IPM Coordinator

Ricardo Zubiate

886-8929 Ext 176

Integrated Pest Management

a brief guide for teachers

Facility Services
1005 W. Beardsley Place
Salt Lake City, UT 84119
(801) 886-8929

Salt Lake City School District

October 2009

INTEGRATED PEST MANAGEMENT

What is IPM?

IPM is a strategy and process for managing pests using simple and effective environmental principals based on understanding pest biology and behavior while also reducing the conditions that attract pests into our schools. This process includes continuing education, inspection, housekeeping, sanitation, exclusion (sealing and caulking), monitoring for pests and the judicious and careful use of least toxic pesticides only when necessary. We have shown IPM can achieve the same or better results in controlling pests as the traditional methods of applying pesticides on a routine and indiscriminate basis but in a much safer and healthier way.

How You Can Help Manage Pests

Pests of all kinds have three basic needs: **FOOD, WATER AND SHELTER.** If we control or eliminate those needs — we can eliminate pests too!

FOOD attracts pests! It is the #1 reason why we find pests in your classroom, offices, the faculty lounge, the cafeteria and kitchens.

If you must serve food, snacks or treats in your classroom, designate an **eating area** (preferably on tile) and use it Choose foods that are easy to clean up and have few or no crumbs.

Encourage the kids to help with clean up immediately after eating. Crumbs that get ground into the carpet become future snacks for ants and other pests.

Those art projects that kids make from elbow macaroni, Cherrios and candy and hang the wall – they attract pests too.

If you must have food in your classroom, a file cabinet or your desk drawer — keep it in **plastic containers** with tight-fitting lids. Mice can eat right through cardboard boxes and plastic bags.

Garbage and recycle bins should be emptied regularly and kept clean of food and other residue. It may be necessary to empty them more often if they are overflowing.

Make sure tile and carpeting are cleaned regularly and check **under furniture** for food debris, especially furniture that can be easily moved.

WATER from leaking sinks, faucets or pipes creates an oasis for night scavengers like crickets and roaches. Make sure these problems are reported to the Maintenance Department ASAP.

ANY beverage has a way of getting spilled. Sugary drinks are the worst and should be avoided in classrooms if you can. Spills should be wiped up immediately and carpets kept as clean as possible.

SHELTER for pests is anywhere that they can hide and stay out of sight. Unfortunately, the more **clutter in your classroom**, the more opportunities to hide. Clutter can be a variety of things from too many seldom used items to stacks of paper,

German cockroaches love corrugated cardboard and are easily transported into buildings this way. Crickets will munch on it and mice use it to build nests. Any pest may use it as shelter. DON'T use cardboard for long term storage. Use plastic bins or crates instead.

Have you used those craft supplies or old lesson materials in the last year? Is there someone else who could use them? Look around and note the problems created by having too much clutter.

Reporting Pests

In order to manage pests, we have to know about them. Using our web-based **iPestManager** tool, anyone can report the presence of pests in your school while learning about them and IPM too. Once reported, we will identify the reasons why they are there and take the necessary steps to eliminate them — before they get out of hand. Anyone can use **iPestManager** and we encourage you to use this tool at every opportunity — just follow these simple steps:

Go to the District's home page, click on **Departments**, then click on **Facility Services**. Locate Resources on the left and click on **iPestManager**.

Benefits

Why IPM? Simply because we have shown we can achieve the same or better results as traditional pest management practices without the over use of pesticides. **It's common sense and it works!**

Training

Would you or your students like to know more about IPM? Our IPM Coordinators can conduct IPM training sessions for faculties, kitchen personnel and custodians and would be pleased to bring a presentation to your school.

Questions?

Your Head Custodian is the IPM Site Coordinator at your school. Contact your Head Custodian or call / email our IPM Program Coordinators below:

Ricardo Zubiate — 514-7976
ricardo.zubiate@slcschools.org

Robin Anderson — 301-4545
robin.anderson@slcschools.org

Merv Brewer — 330-7891
mervin.brewer@slcschools.org

Salt Lake City School District
IPM STAR CERTIFIED

Facility Services
Salt Lake City School District

Professional Development

- Custodial Supervisors and key Grounds staff hold Utah Non-Commercial Pesticide Applicator licenses*
- $20 per license, valid for 3 years
- Requires time for studying and exam preparation and on-going education

YEAR: 2011 No: 4002-14558

STATE OF UTAH
DEPARTMENT OF AGRICULTURE AND FOOD
AS A NON COMMERCIAL PESTICIDE APPLICATOR
LICENSE
RICARDO ZUBIATE

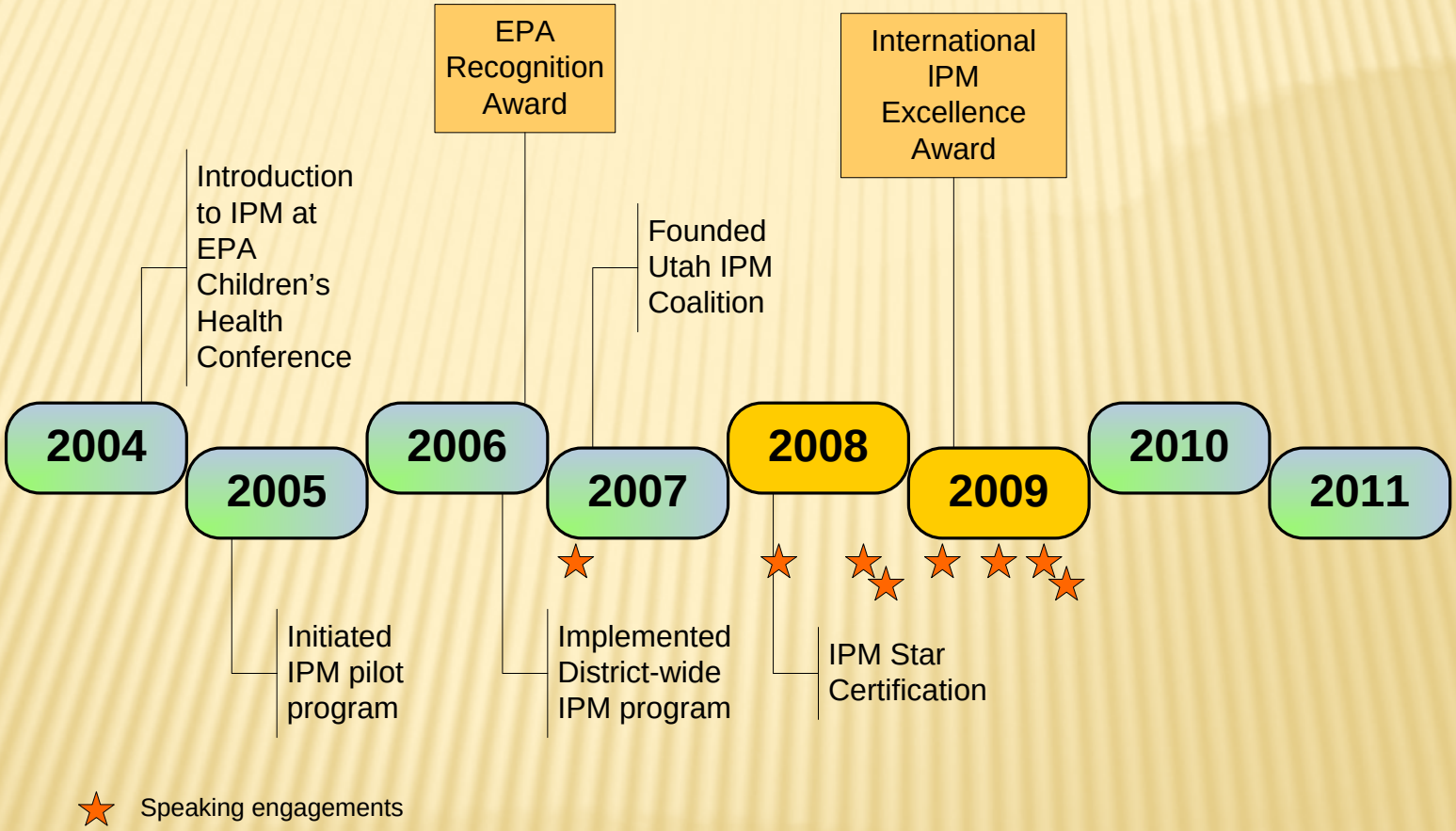
Approved For: 7 Structural

SALT LAKE SCHOOL DISTRICT
3854 S 6250 W
WEST VALLEY UT 84128

Expiration: 12/31/2011

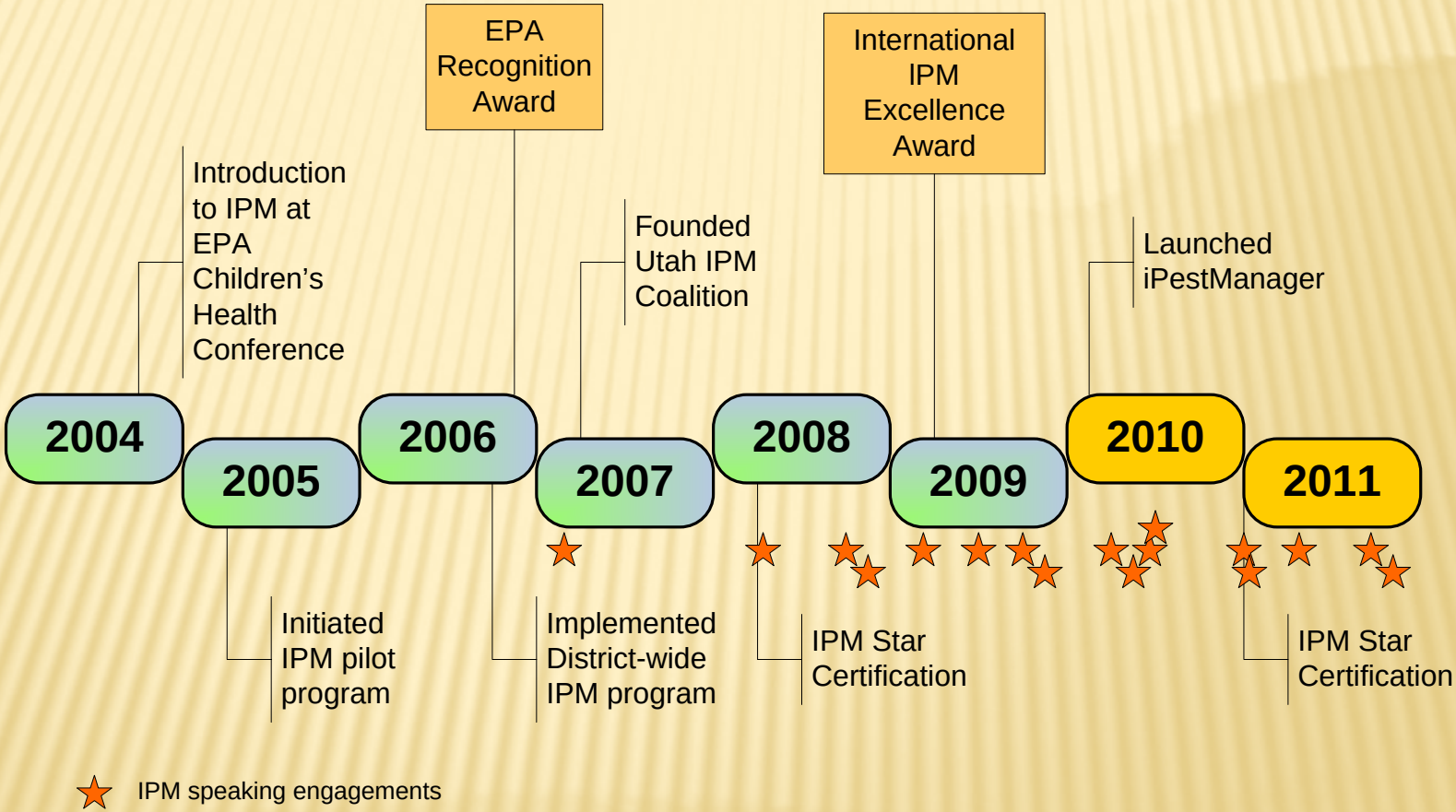
* Not required for school employees in the State of Utah

IPM Star Certification

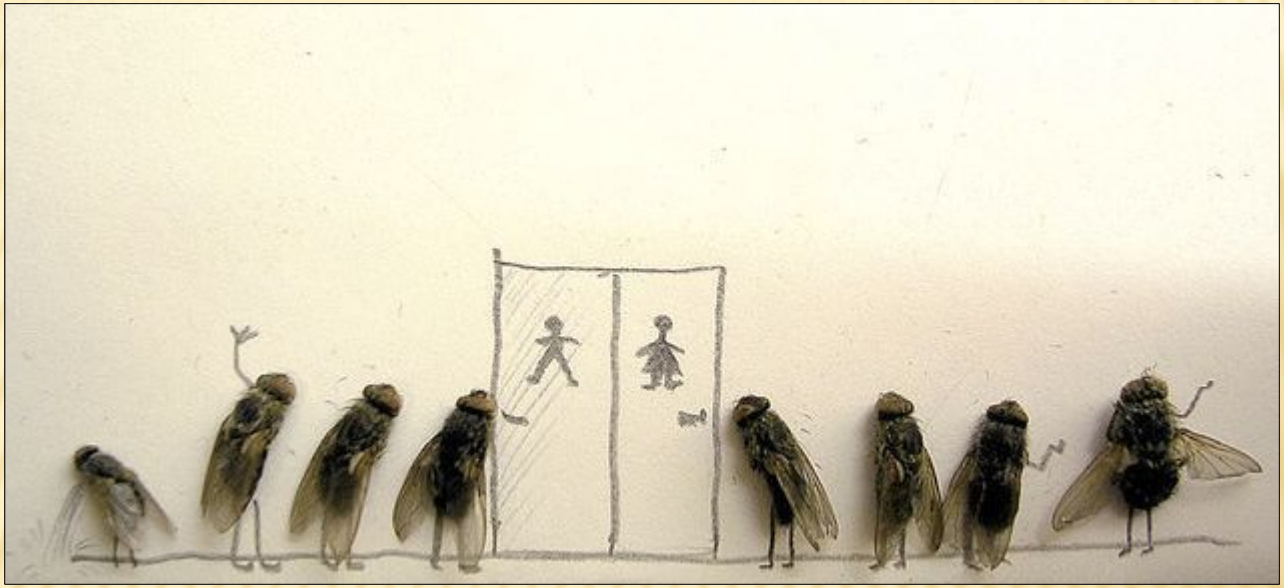



The IPM Institute of North America, in partnership with the
U.S. Environmental Protection Agency
Pesticide Environmental Stewardship Program,
certifies that the
Salt Lake City School District
is an
IPM STAR CERTIFIED
SCHOOL SYSTEM
exceeding a
Rigorous Standard
for
Integrated Pest Management
Excellence in Integrated Pest Management
ipm
IPM STAR CERTIFIED
www.ipminstitute.org
Salt Lake City School District's
exemplary performance in
reducing pest and pesticide risks
to health and the environment
has been verified by an
independent, third-party audit.
ATTEST:
Thomas A. Green, Ph.D., President
IPM Institute of North America, Inc.
2008-2010

Sustainable IPM



We're Moving On



Let’s Take A Break!

Challenges

- The right people
- Education and training
- Facilities
- Maintenance and operation
- Sanitation and housekeeping
- Budgets
- Organizational structure
- Geographic location

Personnel

- Motivated employees who share a common vision
- Empowered to plan and direct their own efforts
- Believe that, rather than working on a list of routine assignments, their job is to be a caretaker of the school environment
- Embrace IPM as one more tool for maintaining safe and healthy schools

Education and Training

- IPM is a cooperative effort that requires sustained public relations for success
- In order for IPM to work:
  - Custodians
  - Kitchen personnel
  - Maintenance and Grounds personnel
  - Teachers and Principals
- MUST have on-going training!

Facilities

- The age of a school can have an impact on the success of IPM efforts and the associated costs
- The design of a school can also contribute to entrance problems, harborage and other pest management issues
- Poorly maintained buildings rather than deterioration from age is the more likely cause of many pest problems

Maintenance

- Building construction materials or mechanical system design can exacerbate maintenance and pest problems
- Both mechanical and plumbing systems are notorious for having pest entrance and harborage opportunities
- Mechanical and electrical rooms, pipe tunnels, crawl spaces, etc. are dark, warm, humid, seldom cleaned and they create harborage opportunities
- HVAC or domestic water leaks may go unnoticed in some building designs, particularly those with pipe tunnels
- Mechanical, plumbing and electrical systems also fail more frequently in older buildings

Sanitation and Housekeeping

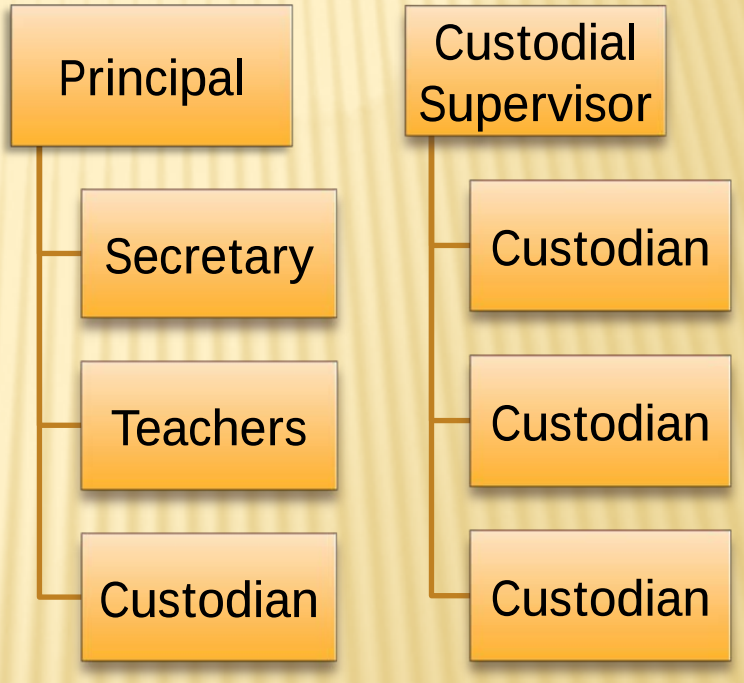
- Kitchens, food storage and trash/garbage holding areas are notorious for attracting and harboring pests
- Any area that allows food, e.g., kitchens, cafeterias, offices, faculty lounges, classrooms, home economics, Special Ed., etc., will attract pests
- Poor cleaning and sanitation practices allows dust, dirt, grease and grim to accumulate in all areas of the building thereby creating more opportunities for pests
- Poor housekeeping practices and the clutter that accumulates in classrooms, stages, storage areas, custodial closets, mechanical and electrical rooms creates more opportunities for pests
- Lack of cooperation from other depts., e.g., Food Services or Special Ed
- Custodians with limited authority to remove food or clutter or enforce better housekeeping standards
- The older the building, the longer the opportunities for problems to develop

Budgets

- When maintenance/custodial budgets are cut to the minimum:
  - Capital repair or replacement costs increase dramatically the longer they are deferred
  - Indoor air quality problems increase because of mechanical system neglect or inoperability
  - Energy conservation opportunities are lost or become cost prohibitive
  - Sanitation becomes marginal – Health Dept concerns increase
  - Occupant moral suffers because of dismal conditions
- Maintenance/custodial budgets must be appropriate for the level of care expected
- Trying to implement IPM in the face of decades of deferred maintenance will be costly and likely fail

Organizational Structure

- The responsibility to implement and manage an IPM program must be in the right hands
- The more streamlined the organizational structure, the more likely the chances of success



IPM Costs and Benefits

- Our experience with pest management related costs including:
  - Traditional pest management costs
  - IPM costs
  - IPM tools of the trade
  - IPM exclusion and control
  - IPM monitoring and reporting

Traditional Pest Management Costs

- Contracted pest management
  - District's practice for the past 30+ years
  - Budget (FY07-08) - $28,000
  - $0.007 per Ft2
  - Level of satisfaction – Acceptable

IPM Costs

- No new personnel
- Start up costs – pilot program
  - $2,400 - tools, training, etc.
  - $2,000 - exclusion
- On-going costs – post pilot program
  - $1,500-$1,800/year – monitoring supplies
  - $1,000-$2,000/year – exclusion
  - $0/year – insecticides
  - $1,500/person/year – suggested professional development
  - Savings from eliminating contracted pest management - $28,000/year
- Level of satisfaction – Better

IPM Tools of the Trade

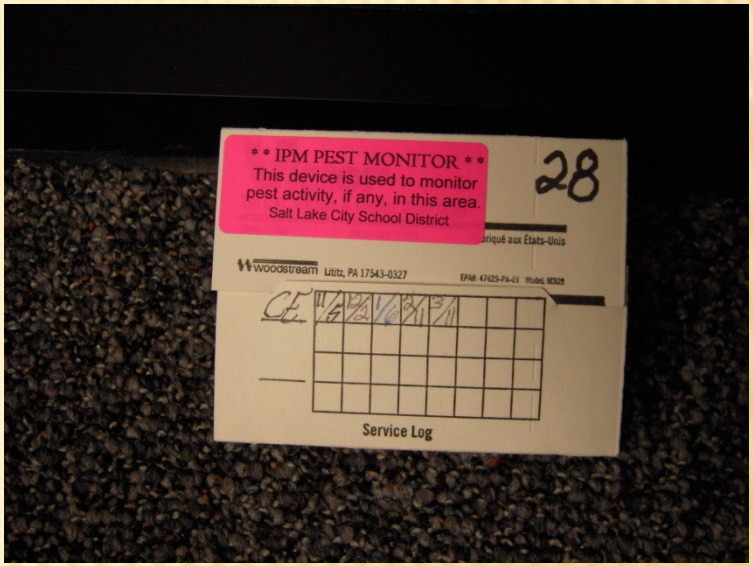
- Flashlight, UV light, eye loupe, collection jars, camera, gloves, caulk, sealant, knee pads, field guides, etc.
- $100 to $300 per person (3) initially and $100/yr there after for supplies
- Microscope - $700
- Bee suits - $145 each
- Reference text - $125 Truman's Scientific Guide to Pest Management Operations
- Other texts - $150

IPM Exclusion and Control

- Exclusion costs will vary with the specific pest problem
- Most of our exclusion problems have been solved by caulking the obvious openings in a building's exterior and installing or repairing door sweeps
- Once completed – it doesn't need to be done again

IPM Monitoring and Reporting

- We require our custodians to complete an inspection of their buildings TWICE a week, including checking and reporting their monitoring traps. If there are pest issues, they check the monitoring traps more frequently.
- One unexpected benefit of using monitoring traps is that the building occupants believe the traps are there to replace pesticides. That's why we had to put the fluorescent labels on the traps to inform people they are not a substitute for pesticides.
- Monitoring traps are our greatest on-going IPM related cost



Perspectives on IPM Costs

- Is the cost to repair something in support of a new program (IPM) really a new cost if it should have been repaired for other reasons?
- Should new activities (cleaning to avoid pests) that enhance existing activities (cleaning for health reasons) be considered a new cost?
- Is the training time required to increase staff awareness, create an atmosphere of cooperation and improve the environment, really a cost?

Benefits

- Cost savings – Yes, but will vary greatly with the situation
- Health Benefits - Unable to quantify at a District level but are well documented in literature
- Regulatory Compliance – Unable to quantify but IPM reduces OSHA and State Risk Management worries
- Public Relations – **Priceless!**

Legislation

- Working through the Utah Asthma Task Force, the Salt Lake City School District has been instrumental in bring about changes to the Administrative Rules enforced by the State Health Department. While currently under review, if the pending rules are adopted, IPM will be required in Utah schools.

IPM Star Certification

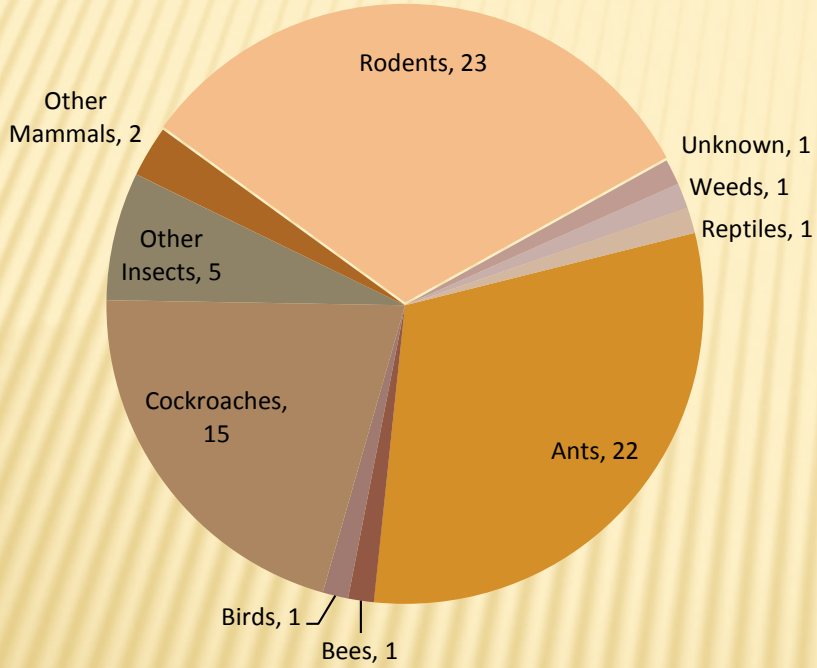
- Review the IPM Standards for Schools found on the IPM Institute of North America website – www.ipminstitute.org
- If you haven't yet created an IPM plan, get started soon because it takes time to complete
- Keep meticulous and well organized records on:
  - Pest sightings and monitoring results
  - Pest mitigation actions
  - Pesticide applications – why, when, where, what product, how much and who applied it
  - IPM training efforts
- Engage all stakeholders as soon as possible
- Focus on training and education
- Budget for certification expenses

iPestManager

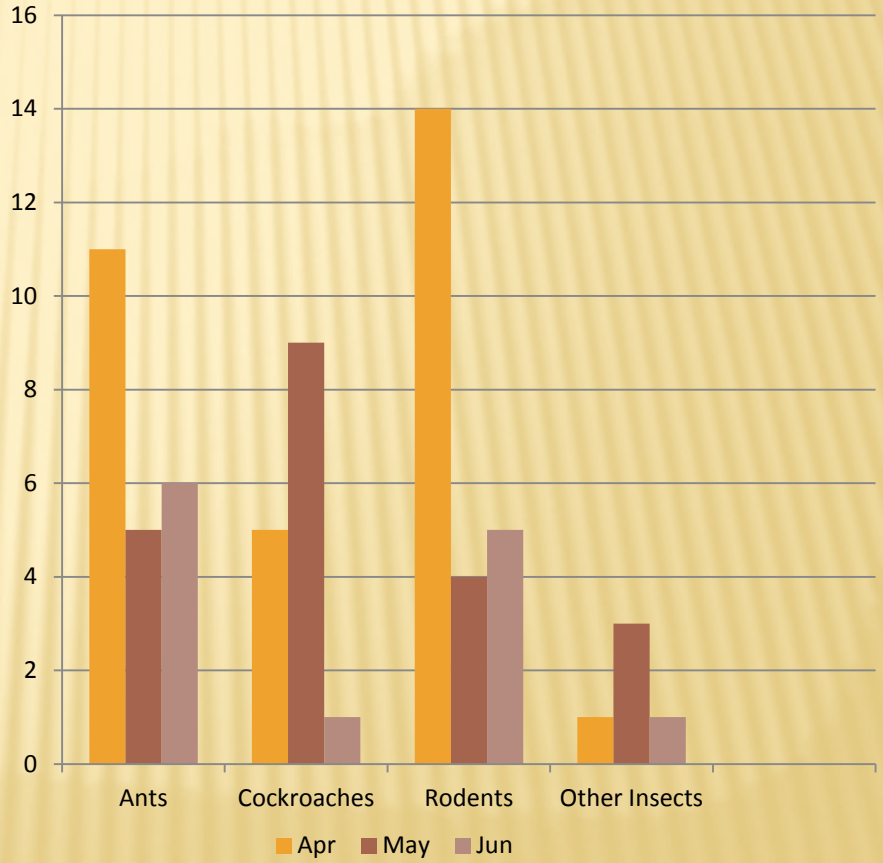
- A web-based application that:
  - Is an integral element of our IPM plan
  - Accessible from our District web site
  - Provides educational information for teachers, staff, students and parents about pests, their habits and behavior and how to use IPM to keep them out of our schools
  - Provides a means for IPM site coordinators, teachers and staff to easily report pests in and around our schools
  - Provides a means for Facility Services to efficiently track all pest activity in the District and manage remedial actions
  - Provides a timeline of action steps related to each pest problem including pesticide application
  - Provides a summary of the resolution to each pest problem
  - **Promotes sustainable IPM practices**

If You Don't Measure It, You Can't Manage It!

Overall Pest Sightings



Pest Sightings by Month



Facility Services
Salt Lake City School District

We Measure EVERYTHING

iPestManager Report

Salt Lake City School District

2011

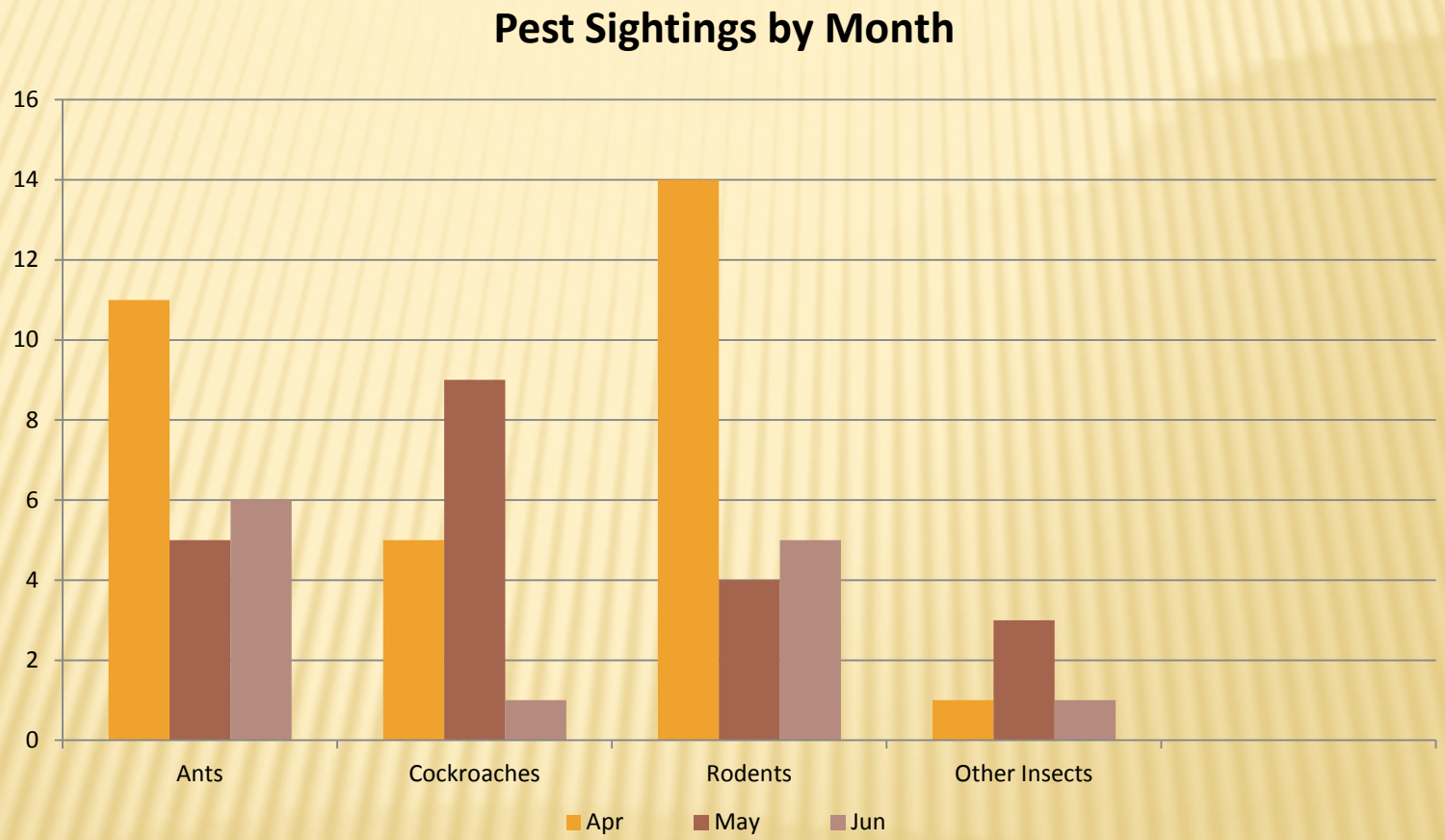
	2010													2011						
Pest	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec***	**Total**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Total**
Ants	4	3	35	20	14	10	3	14	4	1	5	2	115	2	2	15	11	5	6	41
Bees									2				2			3			1	4
Beetles				1		1				2			4			1				1
Birds				1	2	3			1		1		8	1		1			1	3
Cockroaches	2	7	16	18	12	12	5	31	24	24	11	8	170	6	3	13	5	9	1	37
Flies	1		1	1	1			1	2		1	2	10							
Moths					1						2		3			1				1
Other Insects		2	4	1	2		1	2	2	3	5		22	1	2	2	1	3	1	10
Other Mammals	1				1			1	2	1			6					1	1	2
Rodents	1	7	16	23	10	7	4	7	7	11	20	5	118	13	6	8	14	4	5	50
Spiders	3	2	2	6		1	3	7	2	3	9	1	39	2						2
Unknown								1	2	4			7		1			1		2
Wasps / Hornets							2	11	9	1			23							
Weeds																		1		1
Reptiles																			1	1
Grand Totals	12	21	74	71	43	34	18	75	57	50	54	18	527	25	14	44	31	24	17	155

* Schools are closed for two weeks in December

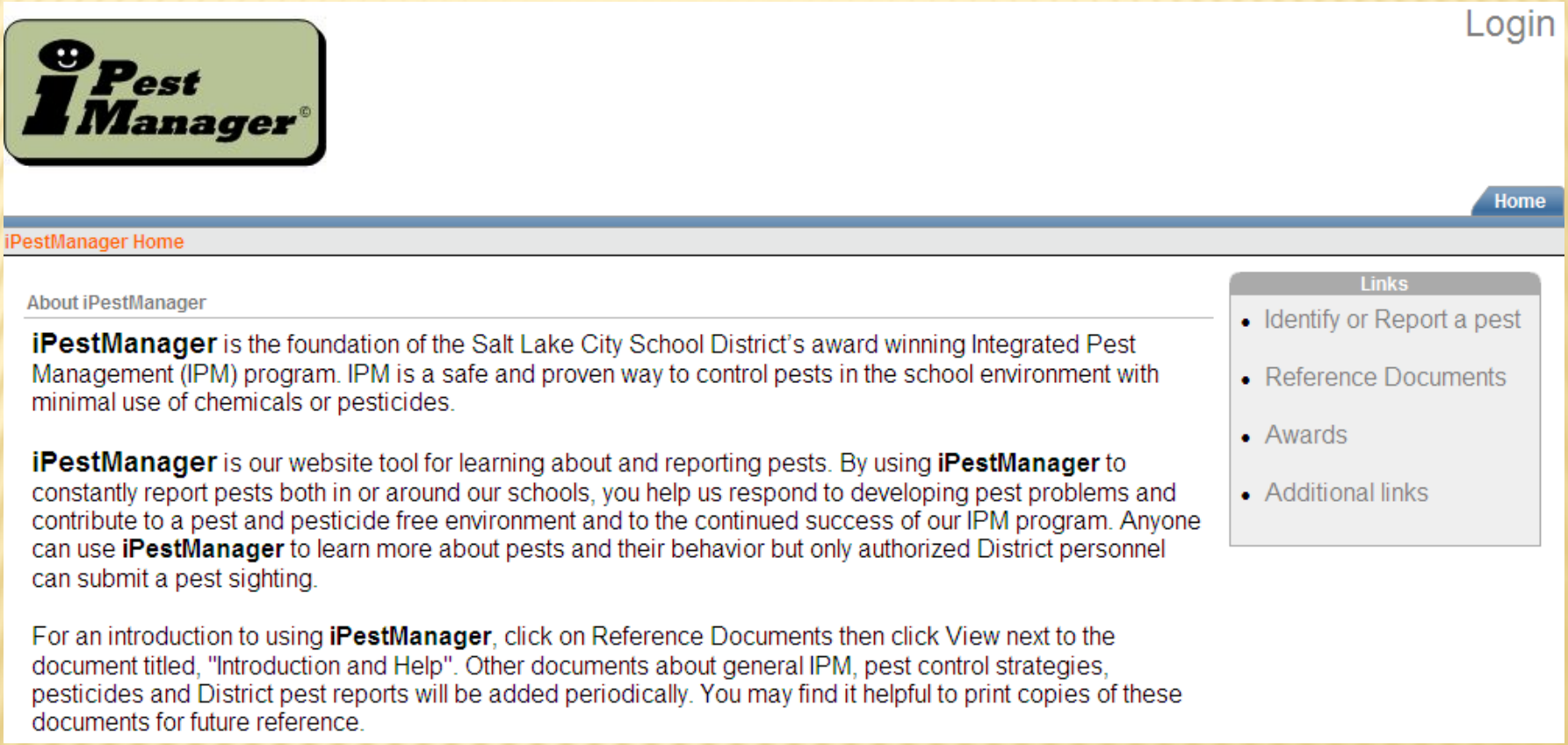
Facility Services
Salt Lake City School District

Data Can Reveal Surprising Trends

Data Can Also Show Results

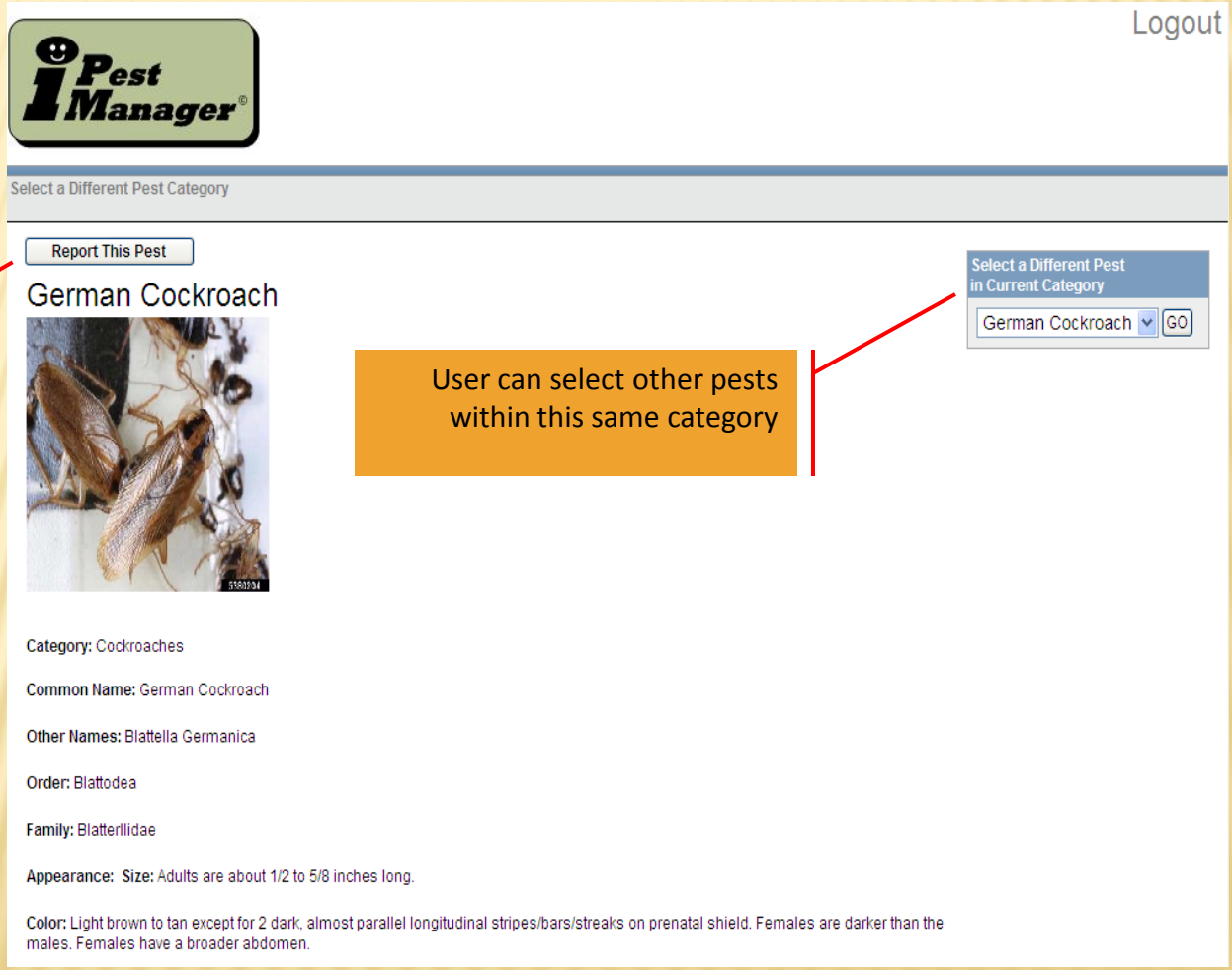


iPestManager



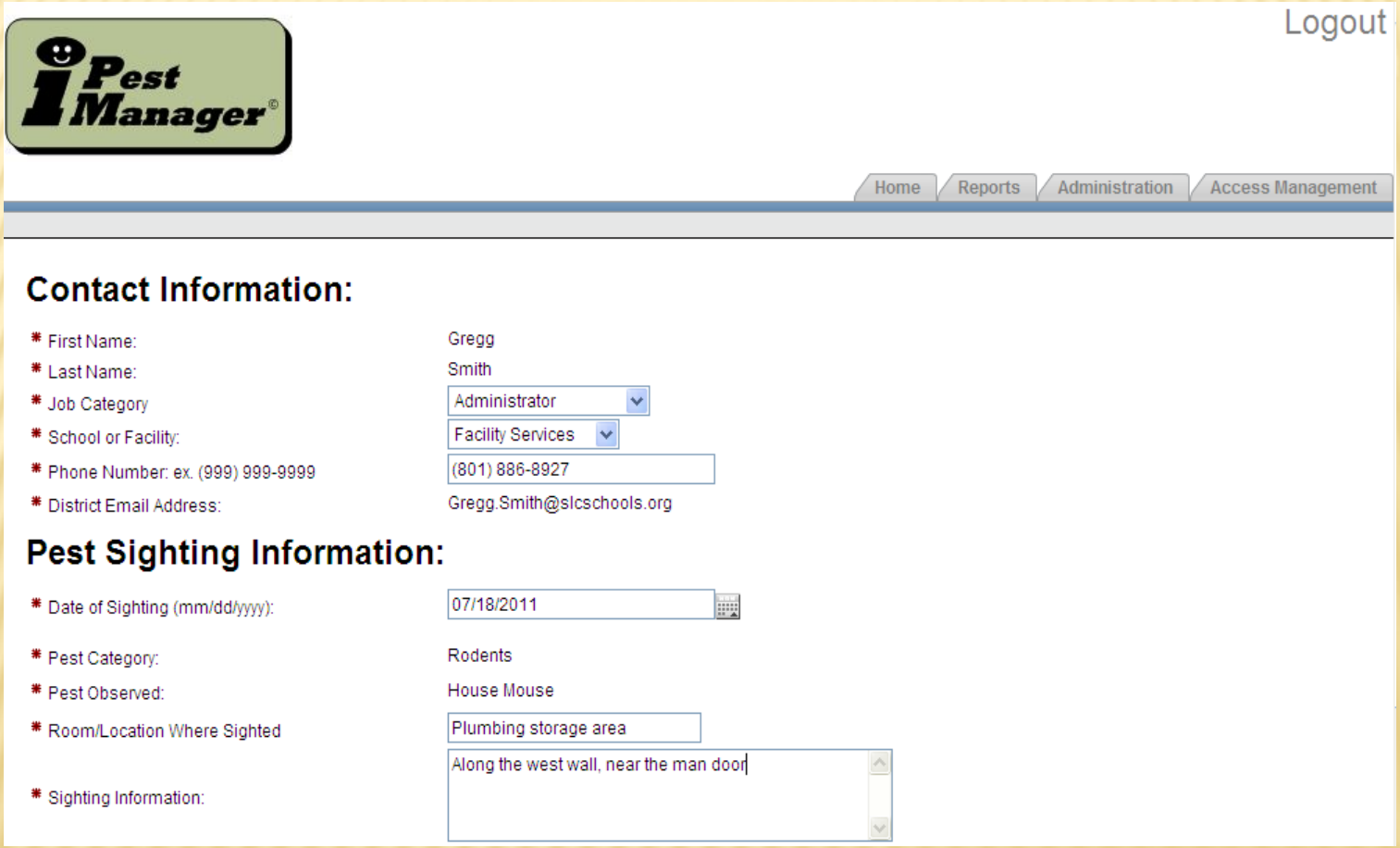
Learn About Pests

Only District employees with email privileges can submit pest sightings

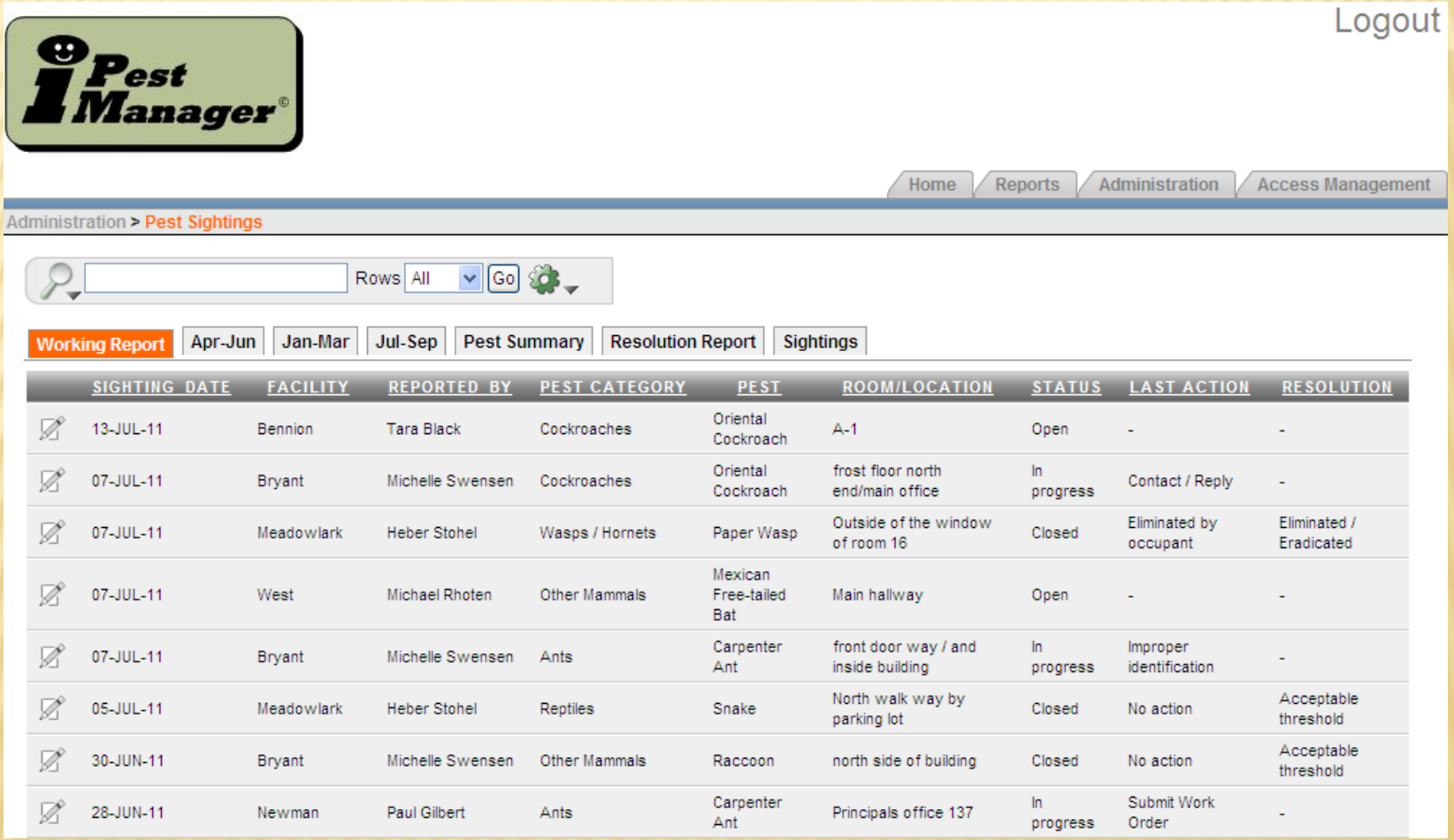


User can select other pests within this same category

Report Pests



Manage Pests



SIGHTING DATE	FACILITY	REPORTED BY	PEST CATEGORY	PEST	ROOM/LOCATION	STATUS	LAST ACTION	RESOLUTION
13-JUL-11	Bennion	Tara Black	Cockroaches	Oriental Cockroach	A-1	Open	-	-
07-JUL-11	Bryant	Michelle Swensen	Cockroaches	Oriental Cockroach	frost floor north end/main office	In progress	Contact / Reply	-
07-JUL-11	Meadowlark	Heber Stohel	Wasps / Hornets	Paper Wasp	Outside of the window of room 16	Closed	Eliminated by occupant	Eliminated / Eradicated
07-JUL-11	West	Michael Rhoten	Other Mammals	Mexican Free-tailed Bat	Main hallway	Open	-	-
07-JUL-11	Bryant	Michelle Swensen	Ants	Carpenter Ant	front door way / and inside building	In progress	Improper identification	-
05-JUL-11	Meadowlark	Heber Stohel	Reptiles	Snake	North walk way by parking lot	Closed	No action	Acceptable threshold
30-JUN-11	Bryant	Michelle Swensen	Other Mammals	Raccoon	north side of building	Closed	No action	Acceptable threshold
28-JUN-11	Newman	Paul Gilbert	Ants	Carpenter Ant	Principals office 137	In progress	Submit Work Order	-

Manage Pesticides

iPestManager Pesticide Report

Salt Lake City School District

FY 2010-11

iPest ID	Facility	Location	Where Applied	Product Name	EPA Number	Quantity	Units	Date Applied	Notification	Applicator	License No.
883	Rose Park	Play Field	South fence, under vines	Wasp Freeze	499-362	5.8	oz	26-Aug-10	Yes	Robin Anderson	4002-14557
849	Uintah	Kitchen	Along baseboards	Advance 360 A	5607-WI	4	ea	4-Apr-11	Yes	Merv Brewer	4002-14559
1121	Nibley Park	Kitchen	Along baseboards	Advance 360 A	5607-WI	5	ea	14-Apr-11	Yes	Merv Brewer	4002-14559

More iPestManager Features

- Exports data to Microsoft Excel for more detailed trend analyses
- Exports simple PDF reports
- Data can be easily searched, sorted or filtered to focus on schools, rooms, locations, pests or results
- Simple charts and graphs are easy to create
- Automatically sends email to Supervisors of new pest sightings
- Self managed - Minimal Information Systems support required
  - All category lists, pest information and images are entered and edited by Facility Services personnel

Why It Works

- iPest makes reporting pests easy - successful IPM depends upon everyone participating in the solution
- iPest teaches people about pest behavior and IPM strategies but more importantly, it teaches people to change their own behavior and that helps to prevent pests
- iPest helps us spot problem areas, developing infestations and pest conducive conditions
- iPest provides data to evaluate and validate our success
- iPest provide complete documentation of pest activity, control efforts, problem resolution and pesticide use

Who Uses iPestManager

- We train our IPM Site Coordinators, teachers, kitchen managers and workers, custodians and maintenance personnel on how to use iPest and encourage its everyday use
- We promote the tool with iPest posters in kitchens, classrooms, lounges, locker rooms, main offices and other “pest venerable areas”
- We distribute flyers explaining IPM and iPest to our teachers

Check It Out

- Go to www.slcschools.org
- Click on the **Departments** tab
- Locate and click on **Facility Services**
- Click on **iPestManager** at the left

Let’s Go Live

That’s Our Story

Thank You!